

IN THE CLAIMS:

This listing of claims will replace all prior versions and listings of claims in the application:

1. (Original) A method comprising:
modeling a circadian rhythm,
calculating a cognitive level of a person based on the person's sleep/wake data,
calculating a predicted cognitive performance based on said circadian rhythm
and said cognitive level.
2. (Currently Amended) A system for performing the method according
to claim 1, said system comprising:
at least one input device for entering sleep/wake data,
a microprocessor ~~that performs the method of claim 1~~ including
means for modeling a circadian rhythm,
means for calculating a cognitive level of a person based on the person's
sleep/wake data, and
means for calculating a predicted cognitive performance based on said
circadian rhythm and said cognitive level, and
a display to show the predicted cognitive performance.
3. (Currently Amended) A computer-readable medium having
computer-executable instructions for ~~performing the method recited in claim 1~~ predicting
a cognitive performance level of an individual, the computer-executable instructions
comprising:
first program instruction means for modeling a circadian rhythm,
second program instruction means for calculating a cognitive level of a person
based on the person's sleep/wake data, and
third program instruction means for calculating a predicted cognitive performance
based on said circadian rhythm and said cognitive level.

4. (Cancelled)
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21. (Cancelled)
22. (Cancelled)

23. (Original) In a computer system having an interface including a display and a user interface selection device, a method of evaluating the effectiveness of a person to perform a task based on a sleep pattern using the interface, comprising the steps of:

- (i) receiving sleep pattern data for an individual;
- (ii) displaying a schedule based on the sleep schedule data; and
- (iii) calculating and displaying a measure of task performance, wherein the measure is based at least in part on the received sleep pattern data.

24. (Original) The method of claim 23, further comprising steps of:

- (iv) entering a parameter affecting the displayed schedule; and
- (v) displaying a second schedule for the individual, wherein the second schedule includes a recalculated measure of task performance responsive to the entered parameter.

25. (Original) The method of claim 24, wherein step (iv) comprises modifying an existing parameter.

26. (Original) The method of claim 24, wherein step (iv) comprises editing a sleep and work interval.

27. (Original) The method of claim 23, wherein step (iii) comprises the steps of:

- (a) modeling circadian oscillators for the individual;
- (b) calculating the amount of effective sleep in a sleep reservoir for the individual based on the individual's sleep and activity pattern; and
- (c) calculating the measure of task performance based on the oscillators and the sleep reservoir.

28. (Original) The method of claim 23, further comprising the step of storing the measure of task performance to a file.

29. (Original) The method of claim 23, wherein step (i) comprises receiving sleep pattern data as input from a user of the computer system.

30. (Original) A computer readable medium storing computer readable instructions that, when executed by a computer system, perform a method of evaluating the effectiveness of a person to perform a task based on a sleep pattern using the interface, comprising the steps of:

- (i) receiving sleep pattern data for an individual;
- (ii) displaying a schedule based on the sleep schedule data; and
- (iii) calculating and displaying a measure of task performance, wherein the measure is based at least in part on the received sleep pattern data.

31. (Original) The computer readable medium of claim 30, wherein the computer readable instructions further cause a computer system to perform method steps comprising:

- (iv) entering a parameter affecting the displayed schedule; and
- (v) displaying a second schedule for the individual, wherein the second schedule includes a recalculated measure of task performance responsive to the entered parameter.

32. (Original) The computer readable medium of claim 30, wherein step (iv) comprises modifying an existing parameter.

33. (Original) The computer readable medium of claim 30, wherein step (iv) comprises editing a sleep and work interval.

34. (Original) The computer readable medium of claim 30, wherein step (iii) comprises:

- (a) modeling circadian oscillators for the individual;
- (b) calculating the amount of effective sleep in a sleep reservoir for the individual based on the individual's sleep and activity pattern; and
- (c) calculating the measure of task performance based on the oscillators and the sleep reservoir.

35. (Currently Amended) A method for providing a cognitive performance level comprising:

receiving a data series representing at least one wake state and at least one sleep state,

selecting a function based on the data series, wherein the function is selected from a group consisting of a wake function, a sleep function, and a sleep inertia function, where

the wake function is expressed as follows

$$w(t) = C_{t-1} - k_w$$

where k_w is a positive function,

the sleep function is expressed as follows

$$s(t) = C_{t-1} + (100 - C_{t-1}) / k_s$$

where k_s is a time constant, and

the sleep inertia function is expressed as follows

$$i(t) = C_{SW} * [0.75 + 0.025 (t - t_{LS}) - (0.025 (t - t_{LS}))^2]$$

where t_{LS} is time when the last sleep state occurred and C_{SW} is the cognitive level at the last sleep state,

determining a cognitive performance capacity using the selected function,
modulating the cognitive performance capacity with a time of day value, and
providing the modulated value.

36. (Cancelled)